REINFORCED CONCRETE MOMENT SLABS

The Standard Specifications are revised as follows:

SECTION 706, BEGIN LINE 3, DELETE AND INSERT AS FOLLOWS:

706.01 Description

This work shall consist of the furnishing and placing of concrete or steel railings on bridges, ~~and~~ on top of *or aside* wingwalls and retaining walls, *and furnishing and placing reinforced concrete moment slabs* in accordance with *105.03.*

MATERIALS

706.02 Materials

Materials shall be in accordance with the following:

Barrier Delineators	926.02(c)
Coarse Aggregate, Class B or Higher, Size No. 8	*904*
Concrete, Class C	702
Dowel Bars	*910.01(b)10*
Joint Materials	*906*
Organic Zinc Primer	909.02(a)2
Polyurethane Finish Coat	909.02(c)
Reinforcing ~~Bars~~ *Steel*, Epoxy Coated	910.01
Steel Bridge Railing Components	910.20

Concrete for reinforced concrete moment slabs shall be QC/QA PCCP in accordance with 501 or PCCP in accordance with 502.

Thrie-beam railing and guardrail elements for retrofit bridge railing shall be steel and shall be in accordance with the applicable requirements *of 910.09, 910.11, and 910.12* for steel beam guardrail ~~shown in 910.09, 910.11, and 910.12~~.

SECTION 706, AFTER LINE 66, INSERT AS FOLLOWS:

706.03.1 *Concrete Railing With Reinforced Concrete Moment Slab*

The railing portion shall be constructed in accordance with 602.03 except it shall be cast in place. Type D-1 contraction joints in the moment slab shall match the locations of the joints in the abutting PCC pavement. If the abutting pavement is HMA, the D-1 contraction joints shall be spaced at 18 ft (5.5 m).

Moment slabs shall be formed with either steel or wood forms in accordance with 508.04(c)1 or 508.04(c)2. Vibration of the concrete shall be in accordance with 702.20(c).

The aggregate drainage layer shall be compacted in accordance with 302.06(b).

Type D-1 contraction joints and dowel bar assemblies shall be in accordance with 503.

Finishing and curing the moment slab shall be in accordance with 504. Finishing and curing the railing shall be in accordance with 702.

Job control testing for acceptance shall be in accordance with 502.05.

SECTION 706, BEGIN LINE 75, DELETE AND INSERT AS FOLLOWS:

706.05 Method of Measurement

Concrete railing, including all concrete work above the top of curb, will be measured by the linear foot (meter) or by the cubic yard (cubic meter) in accordance with the dimensions shown on the plans. No deductions will be made for reinforcing bars or joints. Concrete bridge railing transition will be measured per each for the type specified.

Reinforced concrete moment slabs will be measured by the square yard (square meter) for the thickness specified. Coarse aggregate placed under moment slabs will be measured by cubic yard (cubic meter) in accordance with 109.01(f). Type D-1 contraction joints will be measured in accordance with 503.07.

Reinforcing ~~bars~~ *steel in the railing* will be measured in accordance with 703.07.

Barrier delineators will be measured in accordance with 602.05.

Steel railing will be measured by the linear foot (meter) in accordance with the dimensions shown on the plans or as directed.

Linear measurements will be made from end to end of the railing along the centerline.

706.06 Basis of Payment

The accepted quantities of concrete railing will be paid for at the contract price per linear foot (meter) or cubic yard (cubic meter), for railing, concrete, of the ~~class~~ *type* specified. Steel railing will be paid for at the contract unit price per linear foot (meter) of the type specified. Concrete bridge railing transitions will be paid for at the contract unit price per each for the type specified. *Reinforced concrete moment slabs will be paid for at the contract unit price per square yard (square meter) for the thickness specified, complete in place. Coarse aggregate placed under moment slabs will be paid for at the contract unit price per cubic yard (cubic meter). Type D-1 contraction joints will be paid for in accordance with 503.08.* Reinforcing ~~bars~~ *steel* for concrete railings and concrete bridge railing transitions will be paid for in accordance with 703.08. Barrier delineator will be paid for in accordance with 602.06.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Coarse Aggregate, No. 8	*CYS (m3)*
Concrete Bridge Railing Transition, ____ type	EACH
Railing, *Steel,* ____ type	LFT (m)
Railing, Concrete ____ type	LFT (m) CYS (m3)

Reinforced Concrete Moment Slab, _____ thickness ..... *SYD (m2)*

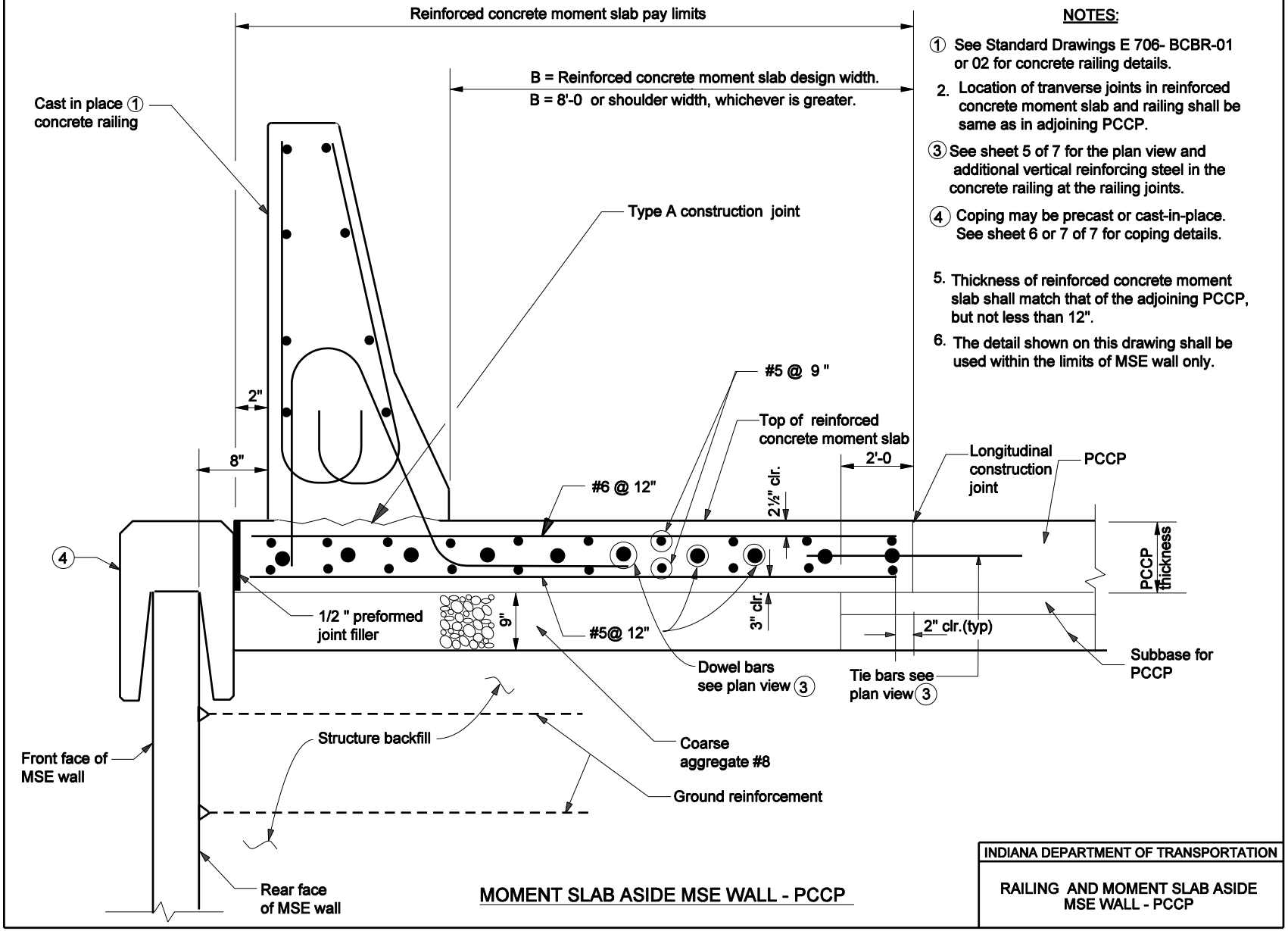
The cost of painting, washers, rivets, welding, anchor bolts, and necessary incidentals shall be included in the cost of the pay items in this section.

Concrete railing which the Engineer has ordered removed and replaced in accordance with 706.03 shall be with no additional payment.

The cost of the epoxy coated reinforcing steel and tie bars in the moment slab shall be included in the cost of the reinforced concrete moment slab.

The cost of all labor and materials required to provide for the monolithic concrete coping with moment slabs shall be included in the cost of the moment slab.

The cost of furnishing and placing all materials not specified as pay items shall be included in the cost of the pay items in this section.



NOTES:

① See Standard Drawings E 706- BCBR-01 or 02 for concrete railing details.

2. Location of tranverse joints in reinforced concrete moment slab and railing shall be same as in adjoining PCCP.

③ See sheet 5 of 7 for the plan view and additional vertical reinforcing steel in the concrete railing at the railing joints.

④ Coping may be precast or cast-in-place. See sheet 6 or 7 of 7 for coping details.

5. Thickness of reinforced concrete moment slab shall match that of the adjoining PCCP, but not less than 12".

6. The detail shown on this drawing shall be used within the limits of MSE wall only.

MOMENT SLAB ASIDE MSE WALL - PCCP

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ASIDE MSE WALL - PCCP

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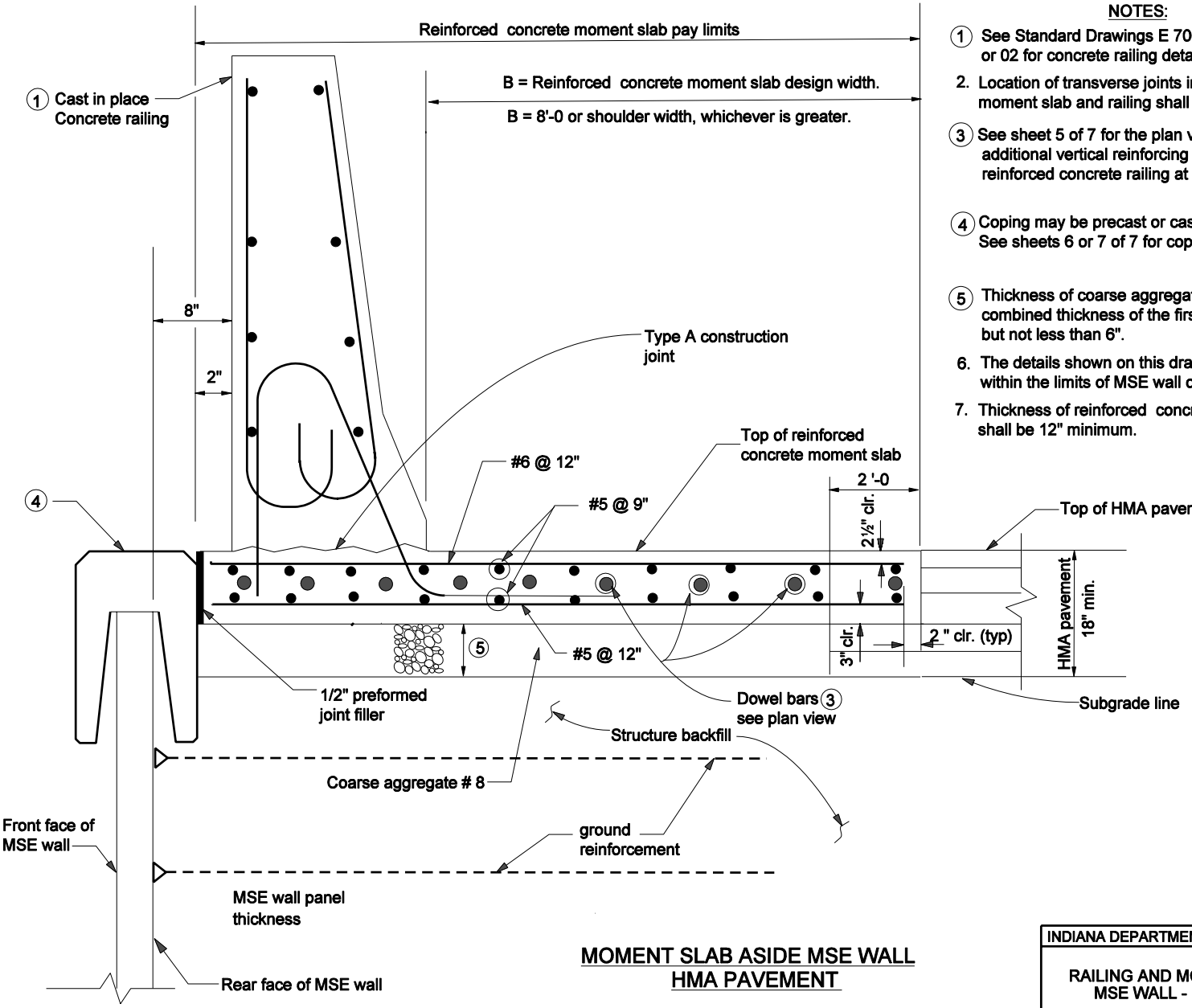
3-01-06



NOTES:

1. See Standard Drawings E 706-BCBR-01 or 02 for concrete railing details.
2. Location of transverse joints in reinforced concrete moment slab and railing shall be the same .
3. See sheet 5 of 7 for the plan view and additional vertical reinforcing steel in the reinforced concrete railing at the railing joints.
4. Coping may be precast or cast-in-place. See sheets 6 or 7 of 7 for coping details.
5. Thickness of coarse aggregate #8 shall be equal to combined thickness of the first two lifts of the HMA , but not less than 6".
6. The details shown on this drawing shall be used within the limits of MSE wall only.
7. Thickness of reinforced concrete moment slab shall be 12" minimum.

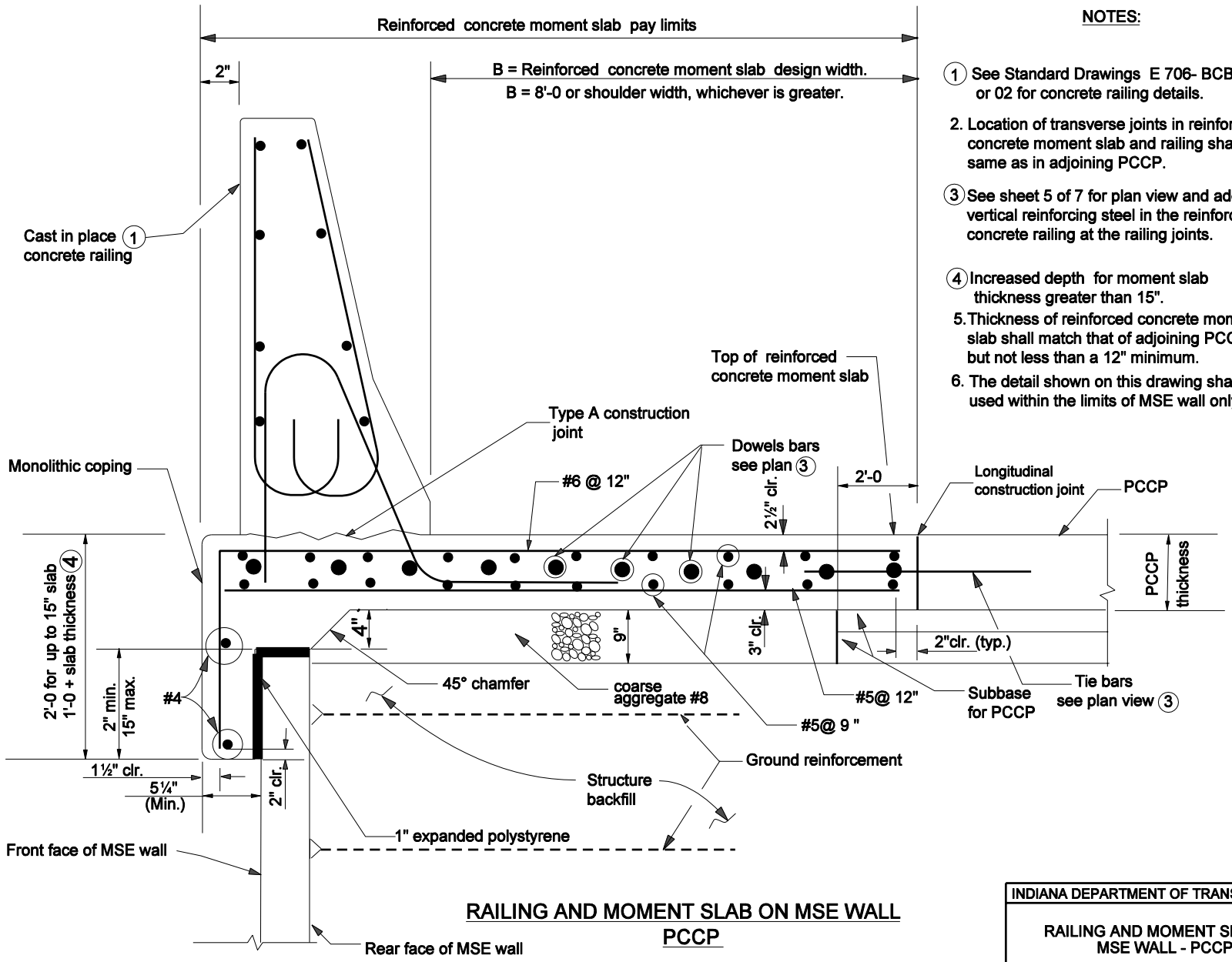
MOMENT SLAB ASIDE MSE WALL HMA PAVEMENT

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ASIDE MSE WALL - HMA PAVEMENT

E 706-R-504d 2 of 7

3-01-06



NOTES:

(1) See Standard Drawings E 706- BCBR-01 or 02 for concrete railing details.

2. Location of transverse joints in reinforced concrete moment slab and railing shall be same as in adjoining PCCP.

(3) See sheet 5 of 7 for plan view and additional vertical reinforcing steel in the reinforced concrete railing at the railing joints.

(4) Increased depth for moment slab thickness greater than 15".

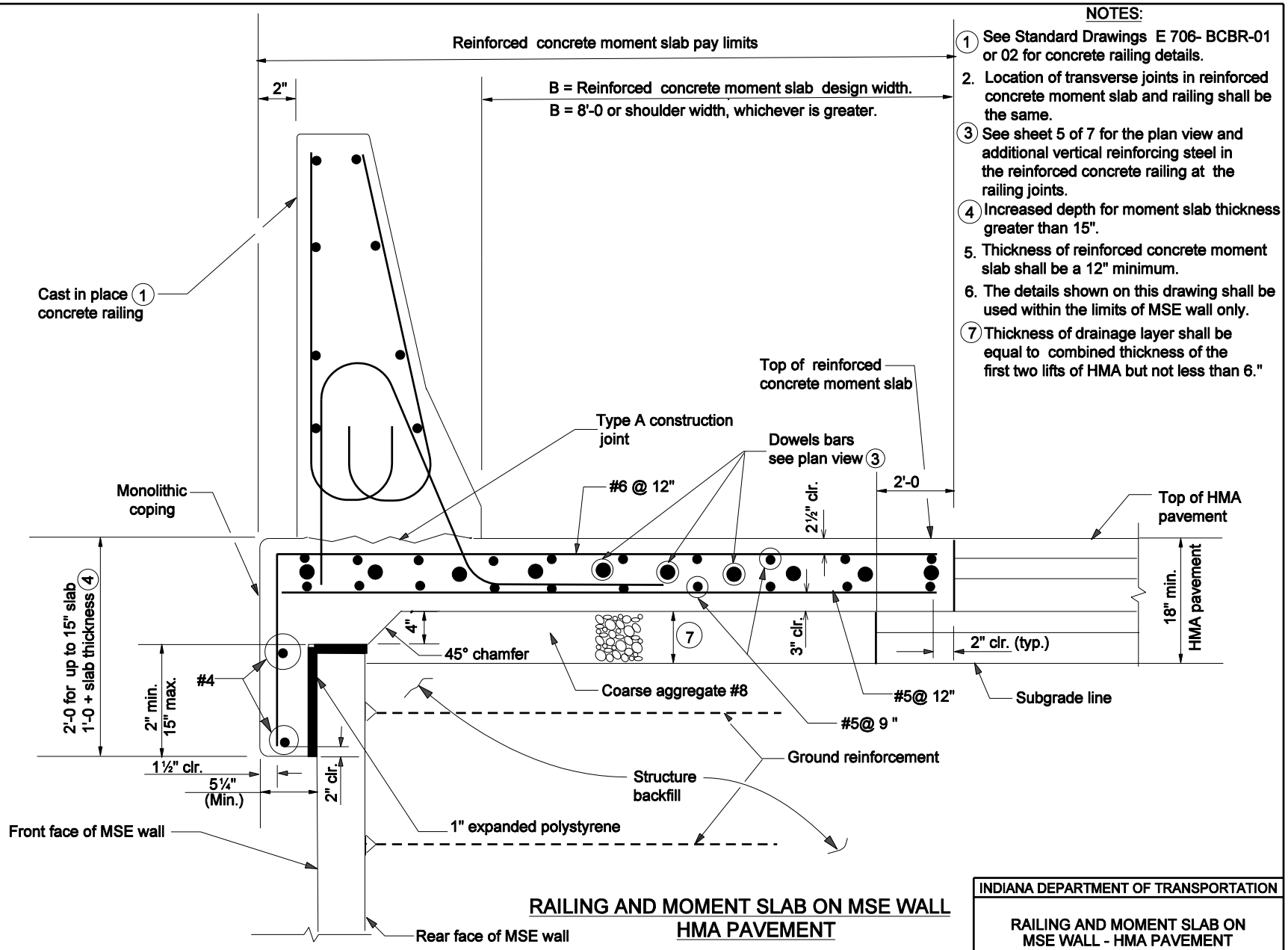
5. Thickness of reinforced concrete moment slab shall match that of adjoining PCCP, but not less than a 12" minimum.

6. The detail shown on this drawing shall be used within the limits of MSE wall only.

RAILING AND MOMENT SLAB ON MSE WALL
PCCP

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ON MSE WALL - PCCP



NOTES:

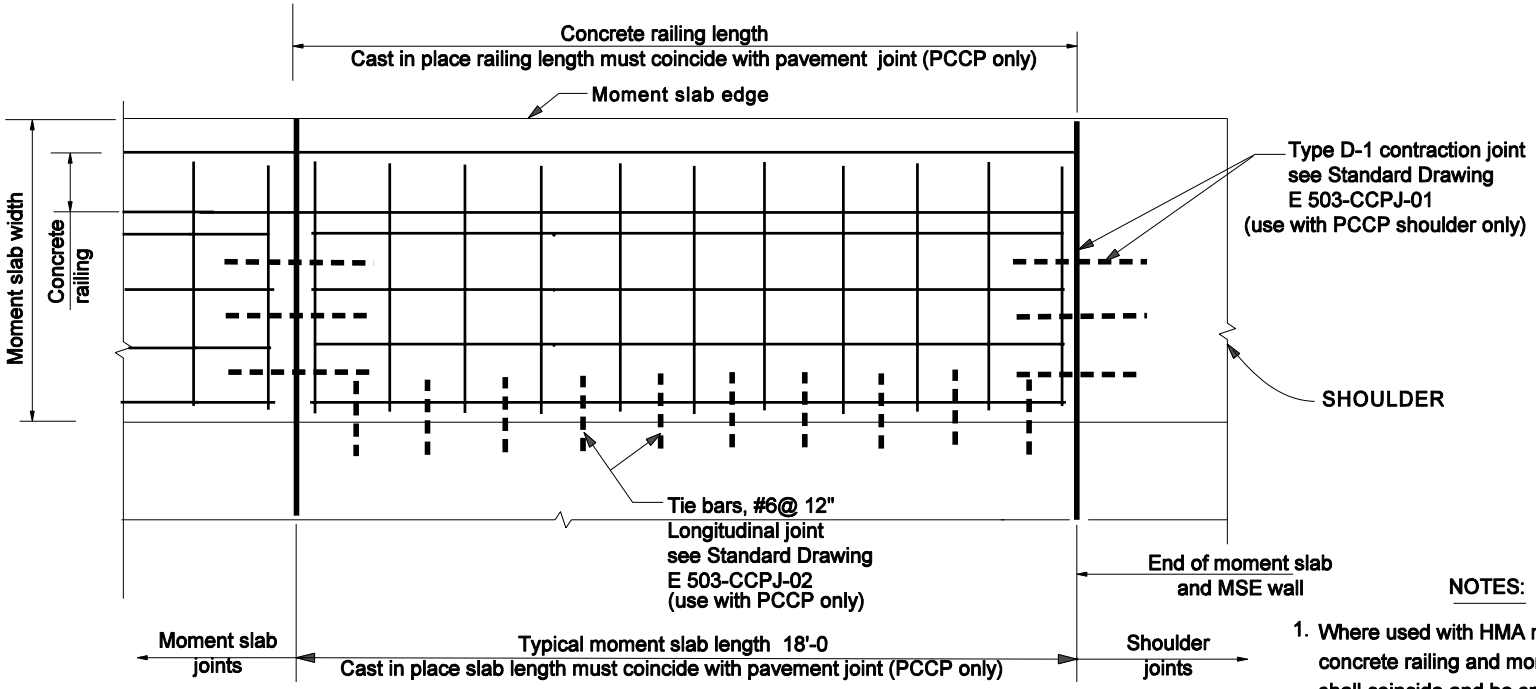
1. See Standard Drawings E 706- BCBR-01 or 02 for concrete railing details.
2. Location of transverse joints in reinforced concrete moment slab and railing shall be the same.
3. See sheet 5 of 7 for the plan view and additional vertical reinforcing steel in the reinforced concrete railing at the railing joints.
4. Increased depth for moment slab thickness greater than 15".
5. Thickness of reinforced concrete moment slab shall be a 12" minimum.
6. The details shown on this drawing shall be used within the limits of MSE wall only.
7. Thickness of drainage layer shall be equal to combined thickness of the first two lifts of HMA but not less than 6."

RAILING AND MOMENT SLAB ON MSE WALL HMA PAVEMENT

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ON MSE WALL - HMA PAVEMENT

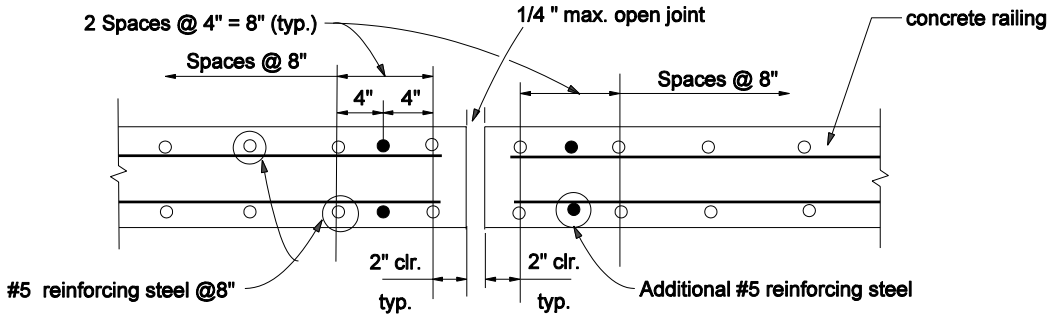
3-01-06



PLAN - REINFORCED CONCRETE MOMENT SLAB JOINTS

NOTES:

1. Where used with HMA mainline pavement, concrete railing and moment slab lengths shall coincide and be spaced at 18 ft.



PLAN - CONCRETE RAILING ADDITIONAL VERTICAL STEEL

INDIANA DEPARTMENT OF TRANSPORTATION

MOMENT SLAB JOINTS

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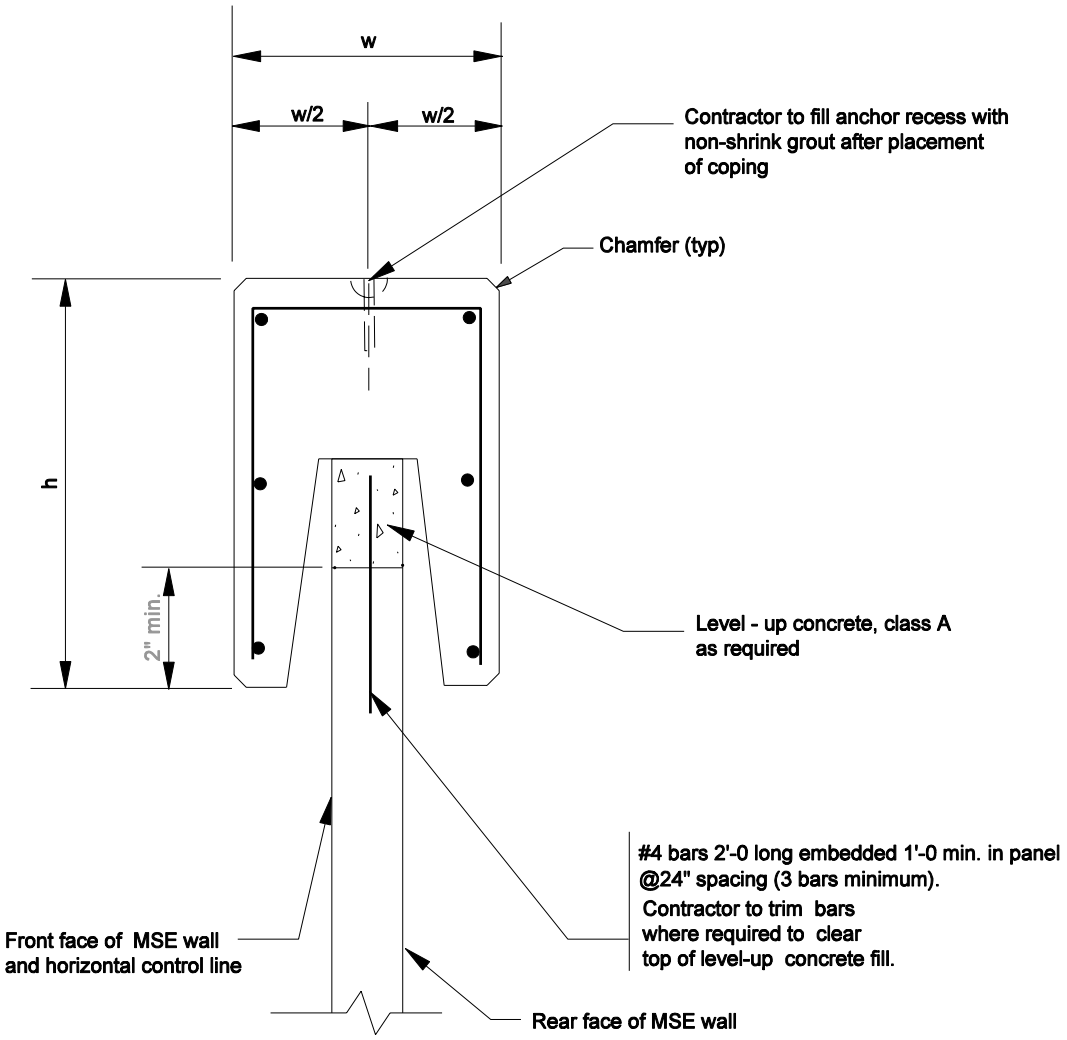
3-01-06



NOTES:

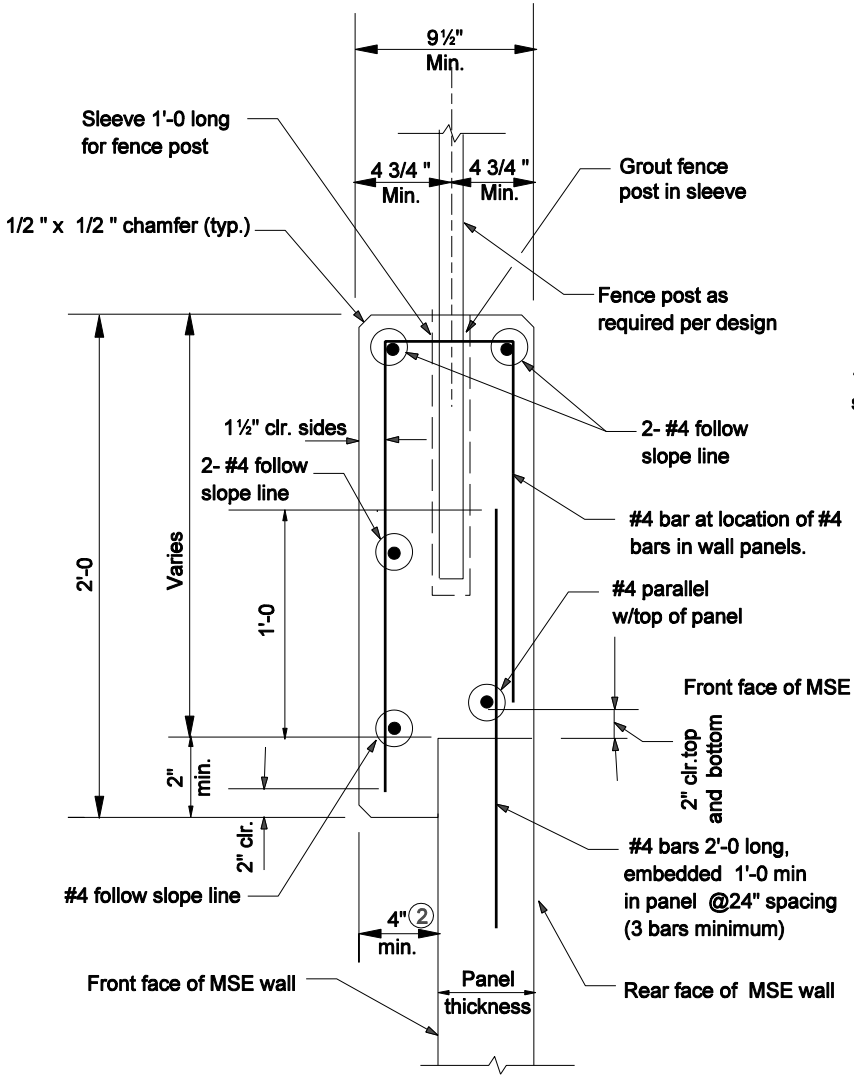
1. Standard precast coping unit shall be 10'-0 long .
2. Reinforcing steel in precast coping shall be determined by the manufacurer.

PRECAST CONCRETE COPING DETAIL

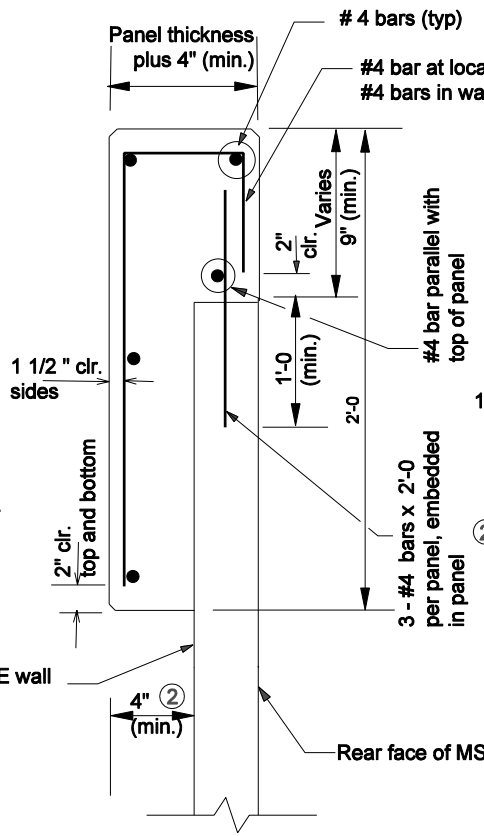
INDIANA DEPARTMENT OF TRANSPORTATION

MSE WALL PRECAST CONCRETE COPING DETAILS

3-01-06



CAST IN PLACE CONCRETE COPING
WITH PEDESTRIAN FENCE



NOTES:

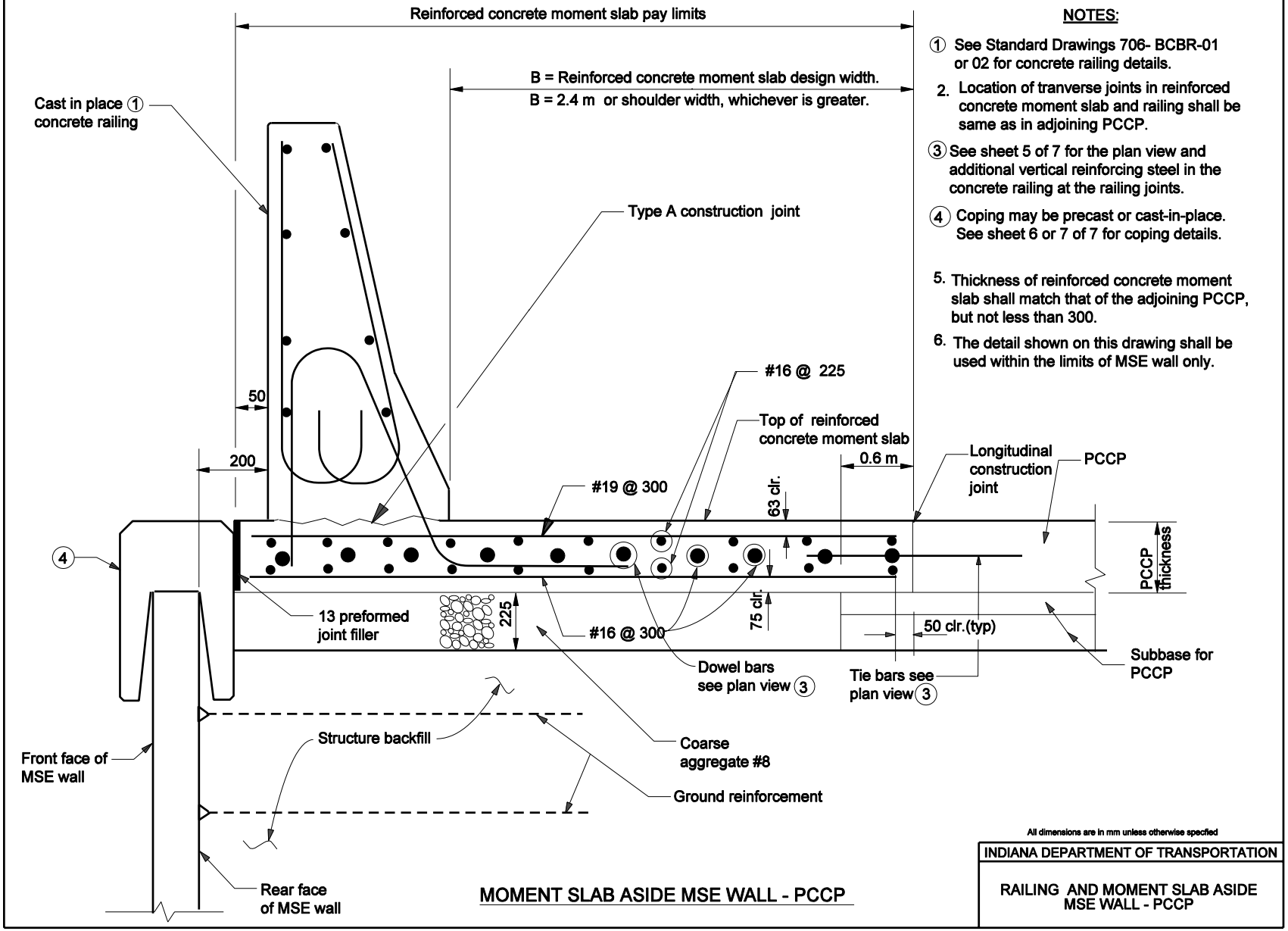
1. Joints in coping shall be at 2 panel intervals and coincide approximately with a panel joint. Reinforcing steel shall be stopped 2" short of near side of each joint.
② Front face of cast in place coping shall match the front face of precast coping when used in conjunction.

CAST IN PLACE CONCRETE COPING

INDIANA DEPARTMENT OF TRANSPORTATION

MSE WALL C - I - P COPING
AND PEDESTRIAN FENCE DETAILS

3-01-06



MOMENT SLAB ASIDE MSE WALL - PCCP

NOTES:

① See Standard Drawings 706- BCBR-01 or 02 for concrete railing details.

2. Location of tranverse joints in reinforced concrete moment slab and railing shall be same as in adjoining PCCP.

③ See sheet 5 of 7 for the plan view and additional vertical reinforcing steel in the concrete railing at the railing joints.

④ Coping may be precast or cast-in-place. See sheet 6 or 7 of 7 for coping details.

5. Thickness of reinforced concrete moment slab shall match that of the adjoining PCCP, but not less than 300.

6. The detail shown on this drawing shall be used within the limits of MSE wall only.

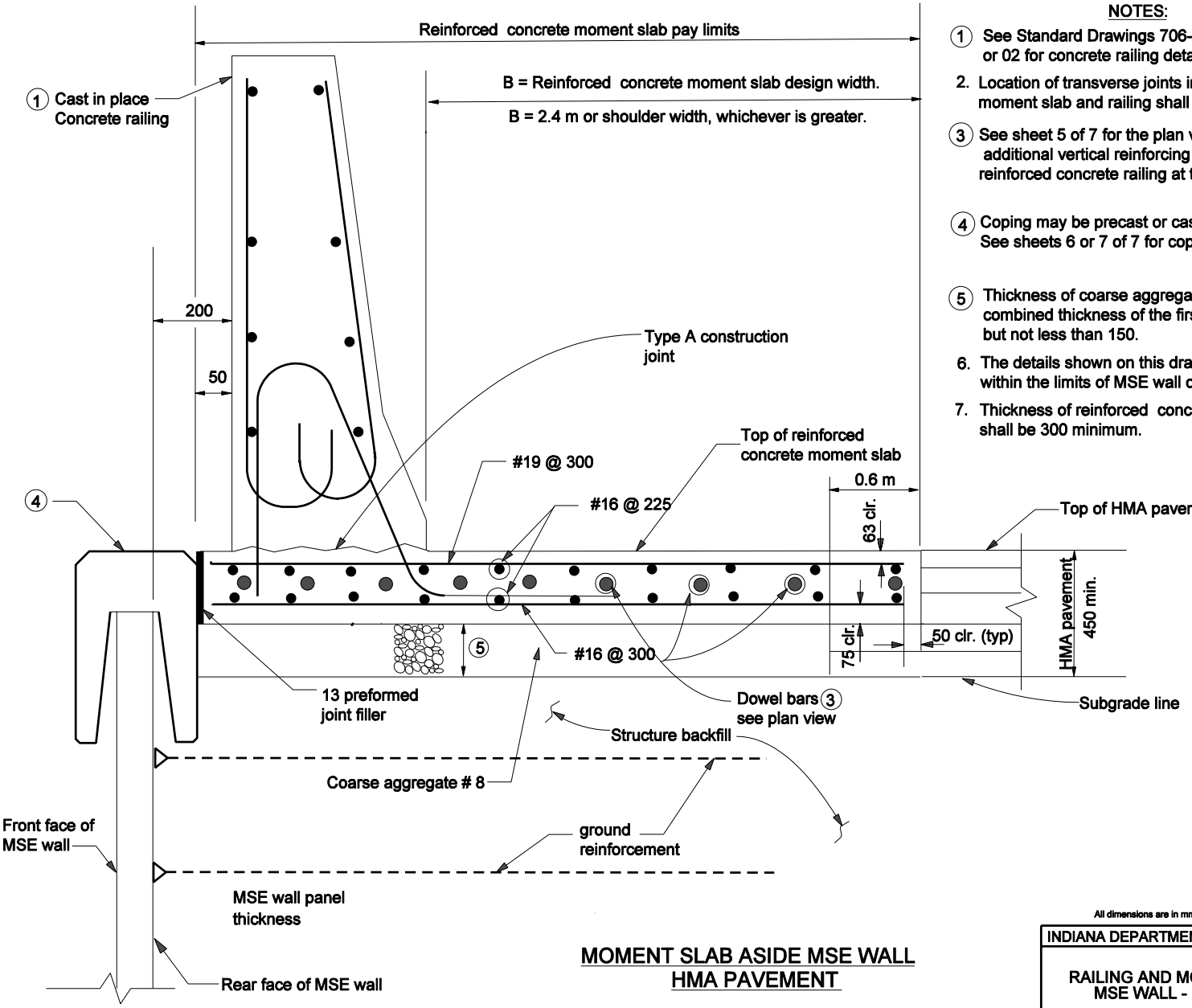
All dimensions are in mm unless otherwise specfied

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ASIDE MSE WALL - PCCP

706-R-504d 1 of 7

3-01-06



NOTES:

1. See Standard Drawings 706-BCBR-01 or 02 for concrete railing details.
2. Location of transverse joints in reinforced concrete moment slab and railing shall be the same .
3. See sheet 5 of 7 for the plan view and additional vertical reinforcing steel in the reinforced concrete railing at the railing joints.
4. Coping may be precast or cast-in-place. See sheets 6 or 7 of 7 for coping details.
5. Thickness of coarse aggregate #8 shall be equal to combined thickness of the first two lifts of the HMA , but not less than 150.
6. The details shown on this drawing shall be used within the limits of MSE wall only.
7. Thickness of reinforced concrete moment slab shall be 300 minimum.

MOMENT SLAB ASIDE MSE WALL HMA PAVEMENT

All dimensions are in mm unless otherwise specified

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ASIDE MSE WALL - HMA PAVEMENT

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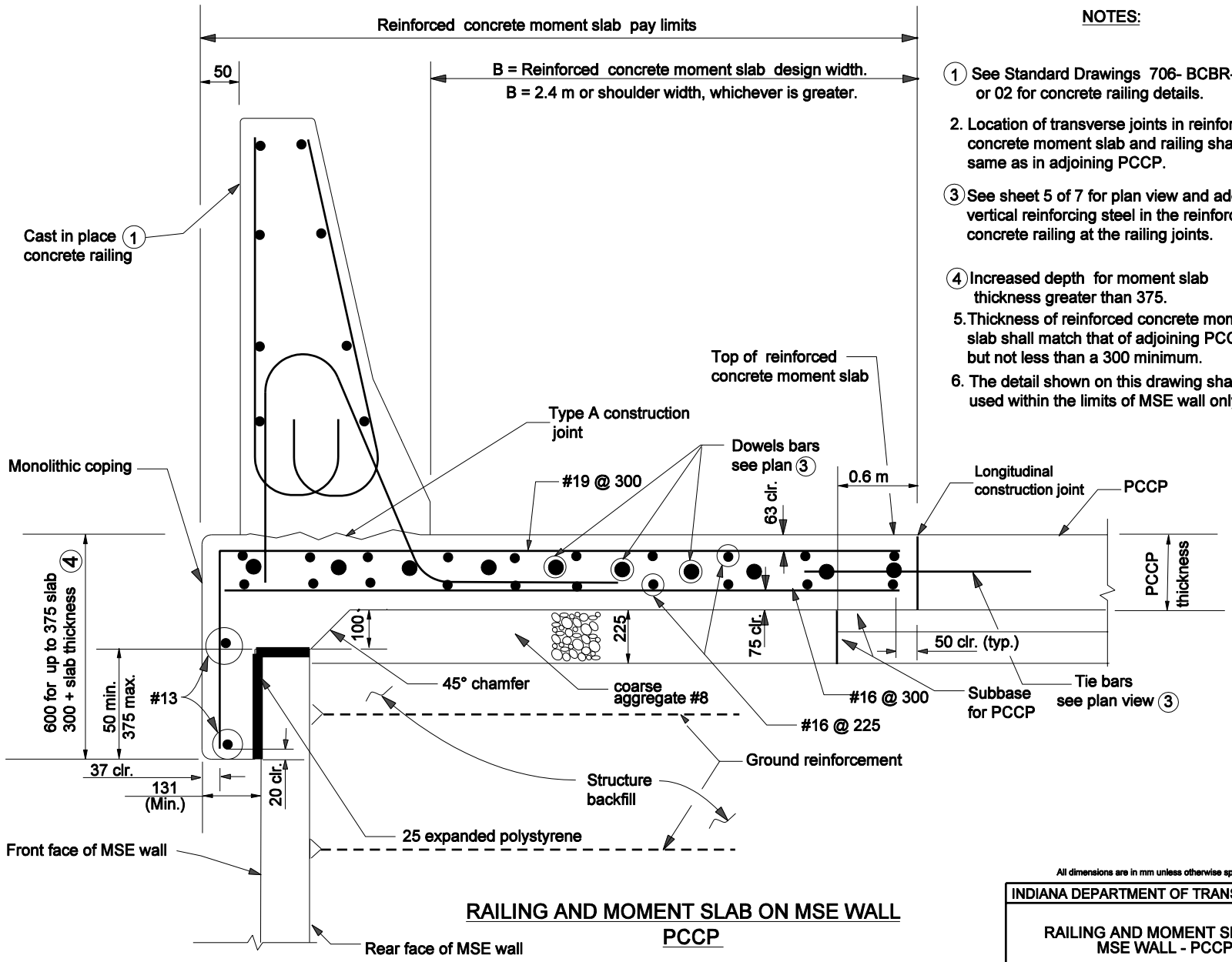
3-01-06



NOTES:

(1) See Standard Drawings 706- BCBR-01 or 02 for concrete railing details.

2. Location of transverse joints in reinforced concrete moment slab and railing shall be same as in adjoining PCCP.

(3) See sheet 5 of 7 for plan view and additional vertical reinforcing steel in the reinforced concrete railing at the railing joints.

(4) Increased depth for moment slab thickness greater than 375.

5. Thickness of reinforced concrete moment slab shall match that of adjoining PCCP, but not less than a 300 minimum.

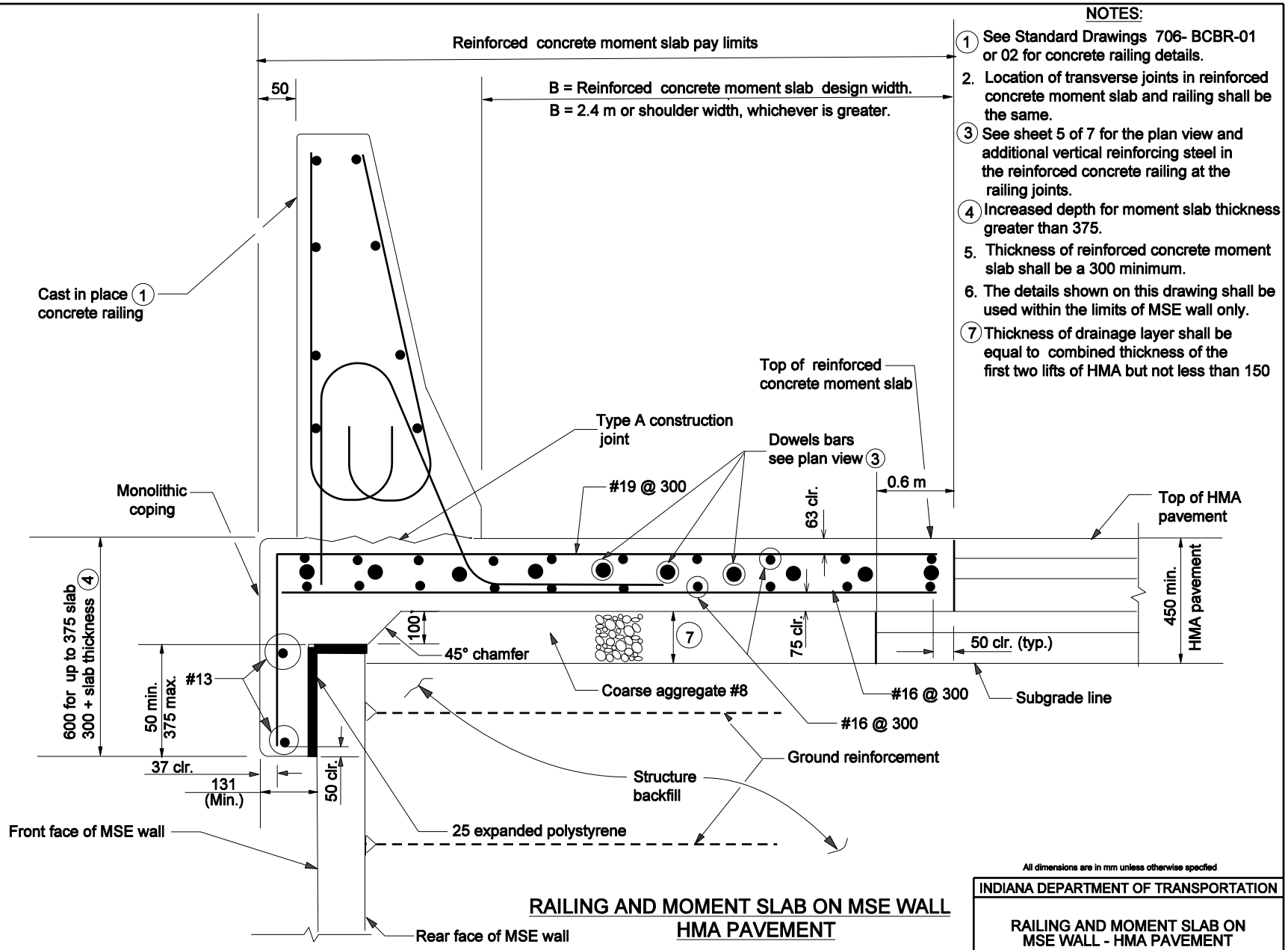
6. The detail shown on this drawing shall be used within the limits of MSE wall only.

RAILING AND MOMENT SLAB ON MSE WALL PCCP

All dimensions are in mm unless otherwise specified

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ON MSE WALL - PCCP



NOTES:

1. See Standard Drawings 706- BCBR-01 or 02 for concrete railing details.
2. Location of transverse joints in reinforced concrete moment slab and railing shall be the same.
3. See sheet 5 of 7 for the plan view and additional vertical reinforcing steel in the reinforced concrete railing at the railing joints.
4. Increased depth for moment slab thickness greater than 375.
5. Thickness of reinforced concrete moment slab shall be a 300 minimum.
6. The details shown on this drawing shall be used within the limits of MSE wall only.
7. Thickness of drainage layer shall be equal to combined thickness of the first two lifts of HMA but not less than 150

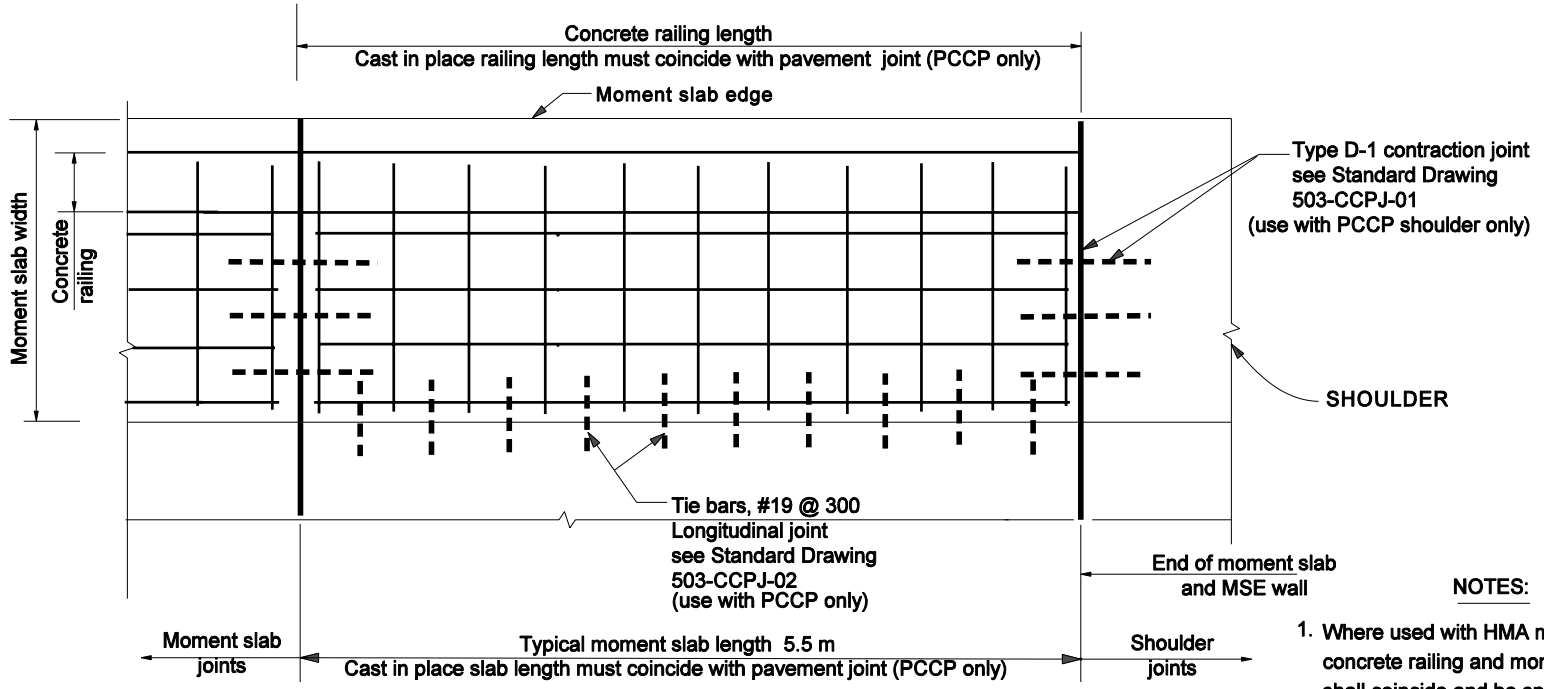
RAILING AND MOMENT SLAB ON MSE WALL HMA PAVEMENT

All dimensions are in mm unless otherwise specified

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING AND MOMENT SLAB ON MSE WALL - HMA PAVEMENT

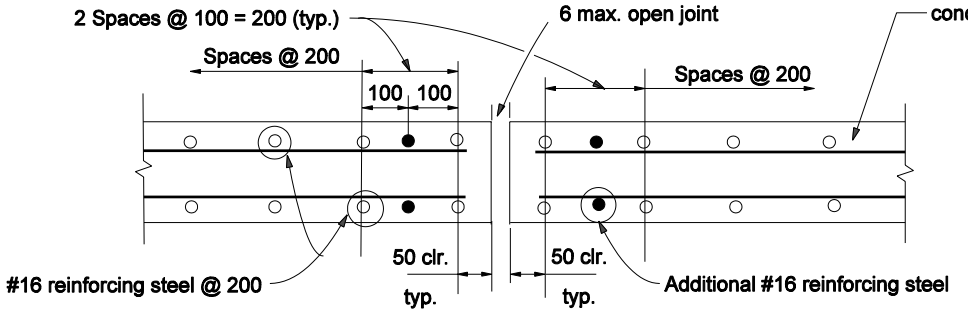
3-01-06



PLAN - REINFORCED CONCRETE MOMENT SLAB JOINTS

NOTES:

1. Where used with HMA mainline pavement, concrete railing and moment slab lengths shall coincide and be spaced at 5.5 m.



PLAN - CONCRETE RAILING ADDITIONAL VERTICAL STEEL

All dimensions are in mm unless otherwise specified

INDIANA DEPARTMENT OF TRANSPORTATION

MOMENT SLAB JOINTS

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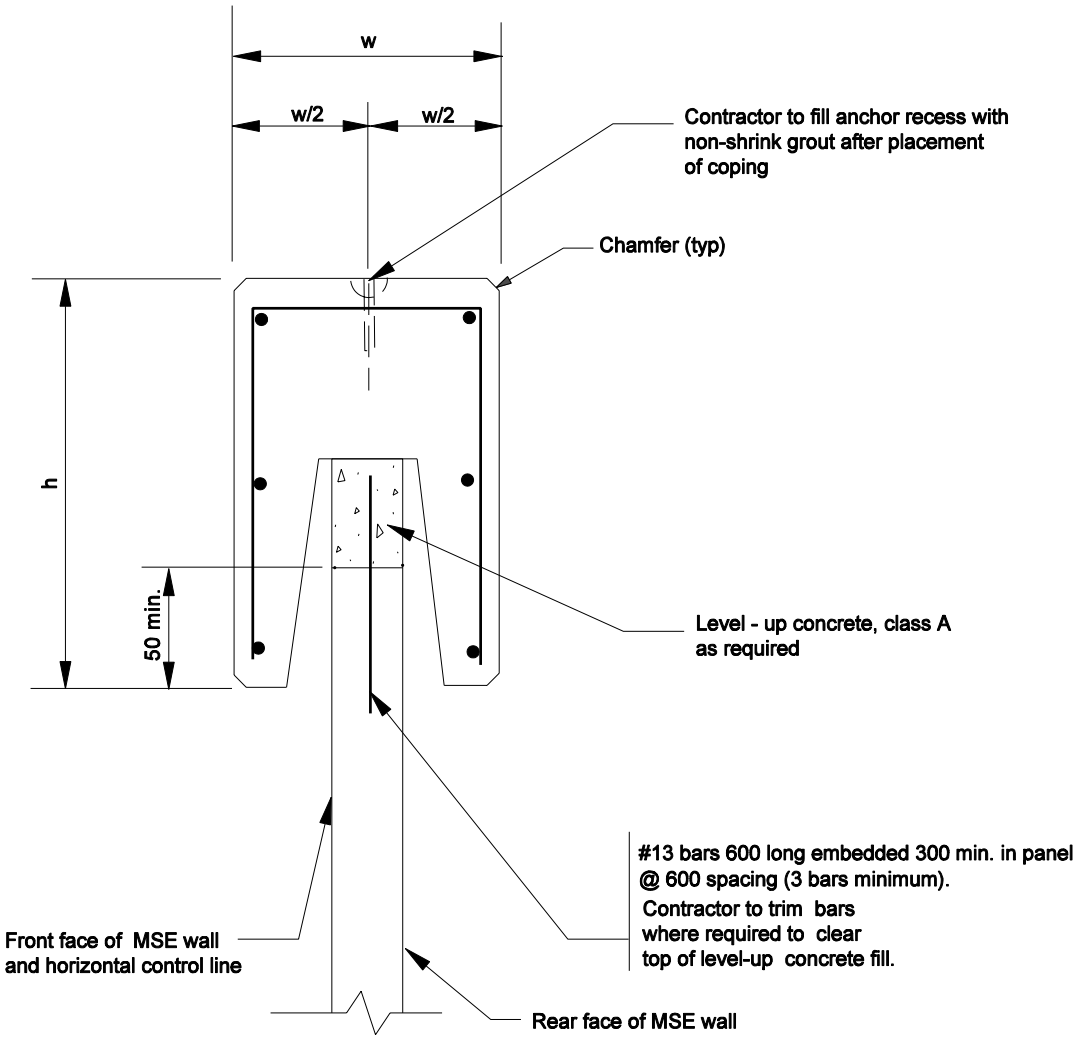
3-01-06



NOTES:

1. Standard precast coping unit shall be 3.0 m long .
2. Reinforcing steel in precast coping shall be determined by the manufacurer.

PRECAST CONCRETE COPING DETAIL

All dimensions are in mm unless otherwise specfied

INDIANA DEPARTMENT OF TRANSPORTATION

MSE WALL PRECAST CONCRETE COPING DETAILS

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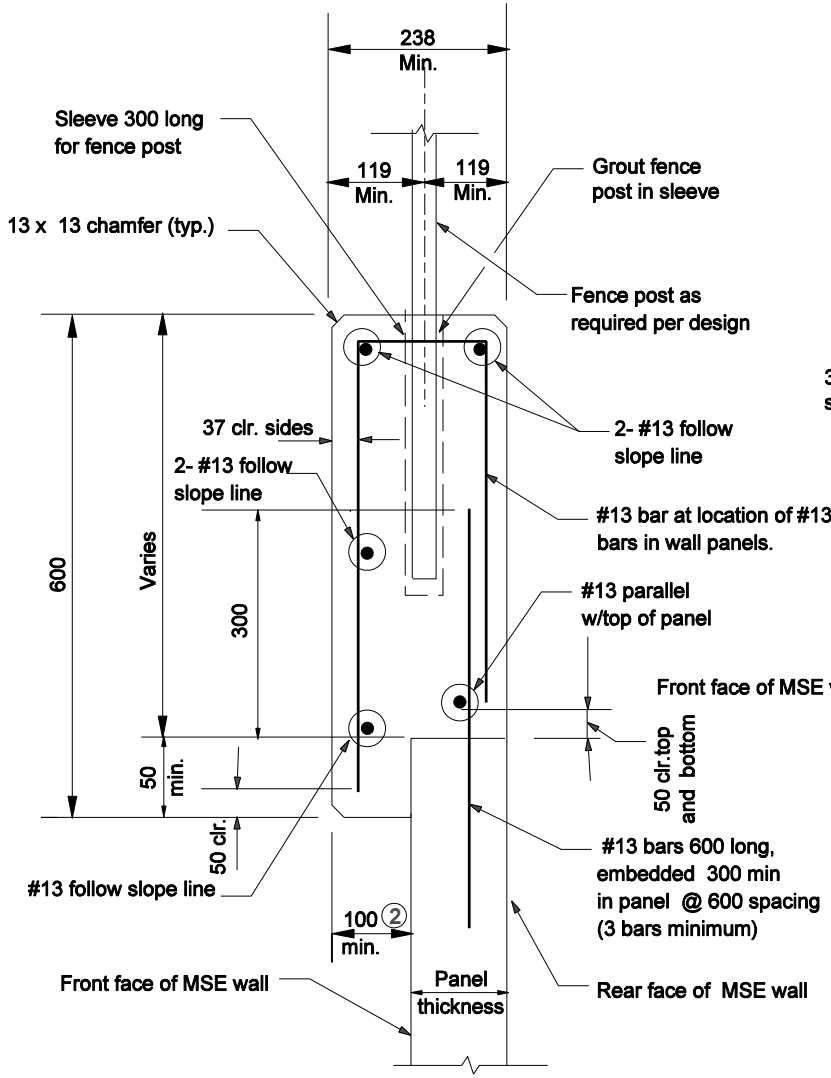
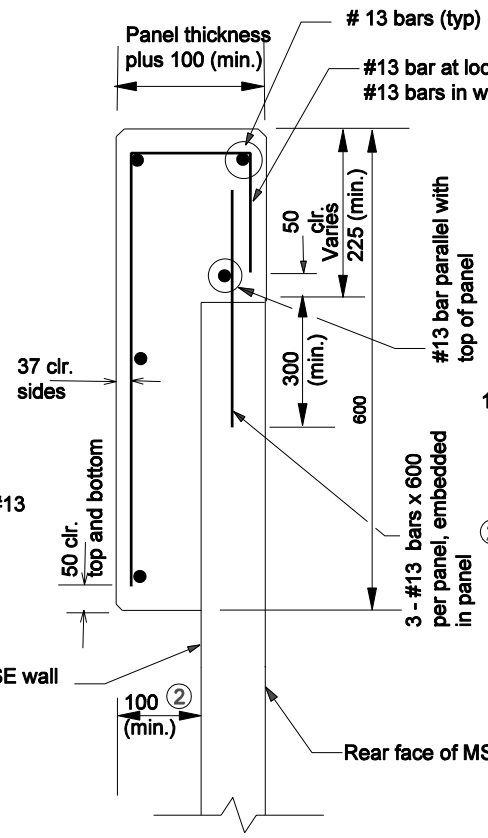
3-01-06



CAST IN PLACE CONCRETE COPING
WITH PEDESTRIAN FENCE



NOTES:

1. Joints in coping shall be at 2 panel intervals and coincide approximately with a panel joint. Reinforcing steel shall be stopped 50 short of near side of each joint.
② Front face of cast in place coping shall match the front face of precast coping when used in conjunction.

CAST IN PLACE CONCRETE COPING

All dimensions are in mm unless otherwise specified

INDIANA DEPARTMENT OF TRANSPORTATION

MSE WALL C - I - P COPING
AND PEDESTRIAN FENCE DETAILS

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3-01-06